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Biotechnology

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Report Highlights:
The agricultural biotechnology sector in Bangladesh is at an embryonic stage. The country is moving toward the adoption of biotechnology for crop improvement and to enhance the country's food security. Significant progress has yet to be achieved in establishing a policy framework and a regulatory system for biotechnology, both of which are now in the drafting stage. Bangladesh will need bilateral and multilateral assistance for capacity building and human resources development in order to support and implement the biotechnology policy and guidelines, and to develop a transparent and science-based regulatory system.

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SECTION I: EXECUTIVE SUMMARY

The Bangladeshi agricultural biotechnology sector is at an embryonic stage, but the country is moving toward the adoption of biotechnology to improve crops and to enhance the country's food security. Bangladesh officially prohibits the importation of agricultural products containing bioengineered products. A policy framework and a regulatory system for biotechnology are in the drafting stage. Although Bangladesh has signed and ratified the Cartegena Protocol on Biosafety, it has not yet developed a legal framework to implement the provisions of the Protocol. The absence of a biotech regulatory system could pose a barrier for the exports of US agricultural commodities, such as corn and soybeans, to Bangladesh. Lack of effective intellectual property rights legislation is also an impediment to the development of the biotechnology sector. There is a general recognition within Bangladesh's scientific and policy community that biotechnology offers the best way to provide food security to the country's growing population. However, the country will need bilateral and multilateral assistance in order to build capacity and to develop human resources to support and implement the biotechnology policy and guidelines

SECTION II: BIOTECHNOLOGY TRADE AND PRODUCTION

Bangladesh does not commercially cultivate any biotechnology crops. Scientists in the universities and government research institutes are trying to produce bioengineered varieties of rice, jute, pulses, oilseeds, and vegetables, mostly for higher yields, disease resistance, and salt tolerance; all these are only at the laboratory stage. However, tissue cultured crops of various forest plants, ornamental and fruit trees are in commercial cultivation.

Bangladesh officially prohibits the import of agricultural products containing bioengineered organisms. Bangladesh is a food aid recipient country (mostly wheat), and is likely to remain so in the coming years. Commercial imports include wheat, rice, cotton, soybean oil (mostly from Brazil), soybean meal (from India), palm oil, and corn (from India). Crops grown using imported seeds include maize, cotton, potato, and some winter vegetables like cabbage, cauliflower, tomato, carrot, none of which are reported to be bioengineered.

There is a general political consensus in favor of biotechnology in Bangladesh. However, there is a general concern among scientists, Non Governmental Organizations (NGOs), and politicians about the safety of biotech products, particularly in the context of preserving Bangladesh's biodiversity. Some NGOs are concerned that a lack of monitoring of biotechnology crops could lead to cross-pollination of existing open-pollinated crops with bioengineered varieties. There is also the misperception that the new technology may be detrimental to the farmers' rights to seeds, because the seed companies, who are mostly multinationals, may establish "ownership" on the seeds of crop varieties under cultivation.

SECTION III: BIOTECHNOLOGY POLICY

Bangladesh has yet to establish a regulatory framework for agricultural biotechnology. There is no single ministry or agency responsible for biotechnology. The Ministries of Agriculture (MOA), Science and Information Technology (MOSICT), and Environment and Forest (MOEF) are jointly responsible for the development of a biotechnology policy and regulatory framework. In 2000, the "Biosafety Guidelines" were developed under the leadership of the MOSICT, and were notified by the government in 2001. No serious attempt to implement the Guidelines was made, due mainly to an intra-Ministry rivalry over who should lead Bangladesh's National Committee on Biosafety. A consensus was reached that the MOSICT would lead biotechnology research and development, while the MOEF would lead biosafety efforts.

In 2005, the MOEF developed new biosafety guidelines, which are still under review by the Prime Minister and the "vetting" ministries like Law, Agriculture, Livestock and Fisheries, and Health. The revised "Biosafety Guidelines" are posted on the website of the MOEF, and are open for comments and suggestions before they are finalized (www.doe-bd.org/biosafety_guidelines.html)

The MOA, which administers Bangladesh's agricultural research; approval and registration of plant varieties; and plant quarantine operations, also actively participates in the ongoing process of policy and regulatory system development for agricultural biotechnology.

The MOSICT formulates the national policy on biotechnology. This draft policy is currently in the approval process with different national committees. It has been cleared by the National Executive Committee on Biotechnology (NECB), which is headed by the Principal Secretary to the Prime Minister, and is awaiting approval from the National Task Force on Biotechnology Development (NTFB). The NTFB is headed by the Prime Minister, and is the apex body among the five national-level biotechnology technical committees that address biodiversity, biosafety, crop biotechnology, livestock and fisheries, and medical biotechnology. The Secretary of the MOEF (US-equivalent level – Under Secretary) heads the National Technical Committees on Biosafety (NCB). The principal role of NCB is to draft and adopt legislation and measures to ensure the environmentally safe management of modern biotechnological development, including research and the development, use, and trade in biotechnology products.

As the regulatory system is not yet in place, no biotechnology crop has so far been approved for commercial cultivation or for field-testing. However, the draft Biosafety Guidelines contain standards and codes of practice related to the "risks" associated with the environmental release of bioengineered products. They also propose a decision-making framework that allows experimental field testing based on (1) familiarity with plant and genetic modification, (2) the ability to confine the bioengineered plant, and (3) the perceived environmental impact, should the plant escape confinement.

There are no separate regulations governing the labeling of biotechnology products. Packaged foods and feed are required to carry a label indicating the country of origin, quantity, weight, component materials, and dates of manufacture and expiry in Bangla (the local language). The composition and percentage of various ingredients, and the statement "There is no alternative to Breast Feeding," must be printed in Bangla on each container of baby food with cream. For beverage imports, the dates of manufacture and of expiry must be clearly printed (except on wine and liquor).

Bangladesh is a signatory to the Cartagena Protocol on Biosafety. It ratified the protocol in 2004, but rules implementing the Protocol have not yet been formulated. Bangladesh authorities have not received any notifications regarding the import of biotechnology products. Neither has Bangladesh stopped the entry of any imported consignment into the country due to its respective bioengineered status. Agricultural commodities imported by Bangladesh include mostly rice, wheat, oilseeds (rape, mustard, and soybeans), pulses (lentil and peas), maize, cotton, fresh fruits, and spices. Bangladesh is also a signatory to the Convention on Biological Diversity, and has ratified the same.

The absence of a national biotech policy and concurrent regulatory system is the major biotechnology-related barrier that could hurt U.S. agricultural exports to Bangladesh. Bangladesh also lacks effective legislation to protect the intellectual property rights in plant varieties. A draft of the Plant Variety Protection Act, which also includes conservation of biodiversity and farmers' rights to seeds of indigenous crop varieties, has been under review by the various stakeholders for more than five years. The only means to oversee the entry

of biotech products (at least theoretically) is the Cartagena Protocol on Biosafety. Accordingly, the draft "Biosafety Guidelines" state that an Advance Informed Agreement (AIA) shall be applied by the government prior to the first intentional trans-boundary movement of bioengineered products for intentional introduction into the country's environment.

SECTION IV: MARKETING ISSUES

The Bangladeshi tariff structure does not differentiate between biotech and non-biotech agricultural commodities. Nor are there any biotech-specific non-tariff barriers on imports. The Bangladeshi importers, retailers, and consumers appear unconcerned and/or unaware about the possible presence of biotechnology in imported agricultural commodities. There is no mechanism to detect the presence of biotechnology in imported food products. As a developing country, price and taste, and also religious considerations, are the major determinants of consumers' food choice. However, there is a misperception among the general public that biotech agricultural products are unsafe. Bioengineered seeds for planting may experience difficulties gaining market acceptability, unless the misapprehensions about bioengineered crops are removed and prices become more affordable.

SECTION V: CAPACITY BUILDING AND OUTREACH

A U.S. State Department-sponsored biotech speaker visited Bangladesh in 2002 and gave a seminar on "The Economics of Agricultural Biotechnology in Developing Countries," with special reference to Bangladesh. USDA funds (from the monetization of food aid in 1998) went to a few Bangladeshi universities for agricultural biotechnology research and capacity building. In 2001, USDA's Cochran program sponsored the visit to the United States of a Bangladeshi journalist in order to familiarize him with the benefits of biotechnology. The USAID is currently funding the Agricultural Biotechnology Support Project (ABSP II) and the South Asia Biosafety Program (SABP) in Bangladesh.

At the multilateral level, the United Nations' Food and Agriculture Organization (FAO) is working with the Bangladeshi Government to develop policy guidelines and regulatory documents under a project called "Capacity Building in Biosafety of GM crops in Asia." The FAO recently prepared a document called "Assessment of Utilization and Potential of Biotechnological Advancement for Agriculture Development in Bangladesh," wherein recommendations were made for institutions and framework-building for agricultural biotechnology in Bangladesh. Additionally, the International Service for the Acquisition of Agri-biotech Application (ISAAA), a Non Governmental Organization, is working on risk and safety issues.

USDA's continued assistance and cooperation in the areas of biotechnology system development would help Bangladesh establish a transparent and science-based agricultural biotechnology regulatory framework. Assistance is also needed with institutional capacity-building, including human resource development, in order to support and implement the biotechnology policy and operate an effective regulatory system.

Embassy Dhaka is planning a late-August 2005 "International Conference on Agricultural Biotechnology" in Dhaka. Objectives include improving stakeholder understanding of the potential opportunities, benefits, and risks of agricultural biotechnology in Bangladesh, and promoting an informed policy dialogue.

SECTION VI: REFERENCE MATERIAL

Revised “Biosafety Guidelines” - www.doe-bd.org/biosafety_guidelines.html